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MAIL STOP: APPEAL BRIEF-PATENTS

By: 

Date: September 15, 2004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
Before the Board of Patent Appeals and Interferences

Applic. No. : 09/688,462 Confirmation No.: 3793  
Inventor : Gotthard Schmid  
Filed : October 16, 2000  
Title : Modular Printing Machine System for  
Printing on Sheets  
TC/A.U. : 2854  
Examiner : Ren Luo Yan  
Customer No. : 24131

Hon. Commissioner for Patents  
Alexandria, VA 22313-1450

BRIEF ON APPEAL

S i r :

This is an appeal from the final rejection in the Office action dated May 20, 2004, finally rejecting claims 1, 3-11 and 14-18.

Appellants submit this *Brief on Appeal* in triplicate, including payment in the amount of \$330.00 to cover the fee for filing the *Brief on Appeal*.

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Real Party in Interest:

This application is assigned to Heidelberger Druckmaschinen AG of Heidelberg, Germany. The assignment will be submitted for recordation upon the termination of this appeal.

Related Appeals and Interferences:

No related appeals or interference proceedings are currently pending which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

Status of Claims:

Claims 1, 3-11 and 14-18 are rejected and are under appeal. Claims 2 and 19-22 were cancelled in an amendment dated October 16, 2003. Claims 12-13 were cancelled in an amendment dated February 20, 2003.

Status of Amendments:

No claims were amended after the final Office action. A *Notice of Appeal* was filed on July 12, 2004.

Summary of the Invention:

As stated in the first paragraph on page 1 of the specification of the instant application, the invention relates to a modular printing machine system for printing on sheets, including a first printing machine of satellite

construction type having a central first impression cylinder and at least four printing devices assigned thereto, a second printing machine having a second impression cylinder, and a coupling device for coupling the printing machines to one another for in-line operation thereof.

Appellant explained on page 9 of the specification, line 12, that, referring now to Figs. 1 to 4 of the drawings, there is shown therein a first printing machine 1 which, in order to form a modular printing machine system 2 to 5, respectively, can selectively be coupled to a second printing machine 6 (note Fig. 1), to a second printing machine 7 (note Fig. 2), to a second printing machine 8 (note Fig. 3) or to a second printing machine 9 (note Fig. 4), and which includes a sheet feeder 10 and a sheet delivery 11 and all the further subassemblies needed for a separate operation from the respective second printing machine 6, 7, 8 or 9.

Appellant further explained on page 9 of the specification, line 23, that, in addition, the first printing machine 1 includes a common impression cylinder 12, around which four printing devices 13 to 16 are arranged, by which a sheet 17 lying on the impression cylinder 12 is printed successively with the colors black, cyan, magenta and yellow in the offset process, preferably using dry offset, i.e., without dampening

solution. Each of the printing devices 13 to 16 includes a form cylinder 18 and an applicator cylinder 19, whereon a rubber blanket is mounted and serves for transferring the respective ink from the form cylinder 18 to the sheet 17. The circumference of the impression cylinder 12, which is equipped with four rows of grippers, is four times as large as the circumference of the form cylinder 18, and also four times as large as the circumference of the applicator cylinder 19. Each form cylinder 18 has a laser source assigned thereto as an imaging device 20 for forming an image thereon, an operation which is performed within the printing machine 1 by laser radiation, and an inking unit 21 for inking during the printing. The first printing machine 1 may be a machine of the "Quickmaster DI 46-4" type produced by Heidelberger Druckmaschinen AG.

As set forth on page 10 of the specification, line 18, each of the second printing machines 6 to 9 includes a sheet delivery 21 to 24 with a chain gripper, is also equipped with a chassis or undercarriage 25 to 28 which is withdrawable if necessary, and has two side walls with a thickness and distance from one another corresponding to those of the first printing machine 1, so that the second printing machine 6 to 9 can be docked without difficulty with and onto the first printing machine 1.

It is stated on page 11 of the specification, line 1, that the second printing machines 6 and 7 are constructed as varnishing machines and, respectively, include an impression cylinder 29, 30 with grippers and, respectively, an applicator cylinder 31, 32. In order to feed varnish, a roller engages the applicator cylinder 31 and, serving as a metering roller 33, together with a dip roller 35 that scoops the varnish out of a trough 34, forms a metering device 36 for producing a uniform film of varnish over the printing width. The second printing machine 7 also has such a zoneless metering device 37, which, in an anilox construction type, includes a screen roller 38 rolling on the applicator cylinder 32 and a doctor blade 39 formed as a chamber-type doctor blade and engaging the screen roller 38. The circumferential length of each cylinder 29 to 32 and of the screen roller 38 corresponds to that of the form cylinder 18. On each of the applicator cylinders 31 and 32, a rubber blanket 40 for varnishing the entire area of the sheet 17, or a flexographic printing form 41 for spot varnishing can selectively be spread. In the latter case, the applicator cylinder 31, 32 is a form cylinder. Of course, a special ink can be printed with each second printing machine 6 and 7 instead of the varnish.

Appellant outlined in the last paragraph on page 11 of the specification, line 23, that the second printing machine 8 is

a slightly modified single-color printing machine of the "Printmaster QM 46-1" type, and the second printing machine 9 is a slightly modified two-color printing machine of the "Printmaster QM 46-2" type, which are produced by Heidelberger Druckmaschinen AG. The aforementioned machine types can also form the basis for the second printing machines 6 and 7; the modifications which would have to be performed for this purpose would then be somewhat more extensive.

Appellant described on page 12 of the specification, line 7, that each of the second printing machines 8 and 9 includes an applicator cylinder 42, 43 which, as a blanket cylinder, transfers the ink from at least one printing form cylinder 44, 45, 46 to the sheet 17 lying on an impression cylinder 47, 48 in the offset process. The applicator cylinder 43 operates as a collecting cylinder together with the two printing form cylinders 45 and 46, in that the rotating applicator cylinder 43, respectively, successively picks up a special ink from the printing form cylinders 45 and 46 rolling thereon and then applies the two special inks at the same time to the sheet 17. Each printing form cylinder 44 to 46 has a dampening unit 49 to 51 assigned thereto for dampening purposes, and an inking unit 42 to 54, constructed as a vibrator-type inking unit, for inking it. The respective dampening unit 49 to 51 can be dispensed with in the case of a second printing machine 8, 9

that operates in the dry offset process. Each printing form cylinder 44 to 46 can have a laser source assigned thereto as an imaging device 55 to 57 for the purpose of forming an image thereon within the second printing machine 8 and 9 by laser radiation. The printing form cylinder 46, the inking unit 54, if appropriate the dampening unit 51 and if appropriate the imaging device 57 are mounted between side plates which are separate from the side walls of the printing machine 9 but correspond to the latter in terms of distance and thickness and, together, constitute a structural unit in the form of a printing module 58, which may be placed on the side walls.

Appellant explained on page 13 of the specification, line 9, that, except for the printing module 58, the second printing machines 8 and 9 are identical to one another. By omitting the printing module 58, the second printing machine 9 can be converted to a single-color printing machine, which corresponds to that shown in Fig. 3. By adding the printing module 58, the second printing machine 8 can be converted to a two-color printing machine, which corresponds to that shown in Fig. 4. As a result of this building-block system, the manufacturer's production costs can be kept low.

Appellant stated in the last paragraph on page 13 of the specification, line 19, that, in order to provide the sheets

17 with imprints that can be varied from sheet to sheet during continuous operation of the machine, for example continuous numbering or codes, an imprinting unit 59 with a stamping shaft 60 can be integrated into both the second printing machine 8 and the second printing machine 9, as is illustrated by using the second printing machine 8 as an example.

Appellant outlined on page 14 of the specification, line 1, that, in order to dry the sheet 17 before it is delivered by the sheet delivery 21 or 23, a dryer 61 can also be integrated, instead of the single printing unit 59, into each of the aforementioned second printing machines 8 and 9, as is illustrated by the use of the second printing machine 9 as an example.

As further set forth on page 14 of the specification, line 8, a dryer 62 to 65 can likewise be integrated into the sheet delivery 21 to 24 of the second printing machine 6 to 9, the dryer 62 to 65 being arranged between the two runs or strands of the chain gripper of the respective sheet delivery 21 to 24. The dryer 62 to 65 is assigned to the lower run or strand, which conveys the sheets 17 and from which the sheets 17 are allowed to fall onto a sheet pile belonging to the respective sheet delivery 21 to 24. The dryer 62 to 65 acts upon the front side of the sheet 17 freshly printed in the second



printing machine 6 to 9 while the sheet is being transported past the dryer 62 to 65 by the chain gripper.

Appellant explained in the last paragraph on page 14 of the specification, line 20, that, for the purpose of transporting sheets from the first printing machine 1 into the respective second printing machine 6 to 9, a feeding device 66 to 69 and a modular transport device 70 to 73 are installed between the sheet delivery 11 of the first printing machine 1 and the second impression cylinder 29, 30, 47 or 48 of the second printing machine 6 to 9. Each of the transport devices 70 to 73, which are described in greater detail hereinbelow, can be installed instead of each of the other transport devices 70 to 73. For example, the transport device 70 can also be integrated, instead of the transport device 71, into the printing machine system 3. The feeding devices 66 to 69 are identical with one another.

It is stated on page 15 of the specification, line 7, that each transport device 70 to 73 is arranged between the first impression cylinder 12 and the respective second impression cylinder 29, 30, 47 or 48 to transport the sheets from the first impression cylinder 12 to the second impression cylinder 29, 30, 47 or 48, and is constructed to transport the sheets 17 along a linear transport path 74 to 77.

It is further stated on page 15 of the specification, line 14, that an electric motor drive 118 which drives the first printing machine 1 and, in particular, the rotating system of the first impression cylinder 12 and the revolving system of the sheet delivery 11, a drive 119 which drives the second printing machine 6 to 9 and, in particular, the rotating system of the second impression cylinder 29, 30, 47 or 48, and an electric motor drive 120 which drives the transport device 70 to 73 and, in particular, the revolving system thereof, are linked to an electronic control device 121 and, via the latter, are linked to one another, in terms of control technology, for the synchronization of the drives 118 to 120, as is shown by way of example in the printing machine system 3 in Fig. 2. In order to prevent the gripper bars 89 and 90 of the transport device 71 from colliding with the delivery gripper bars, even in the case of accidents and, for example, in the event of failure of the control device 121, formlocking or positive forcible control is provided in the form of a gear mechanism 122 linking the transport device 71 with the sheet delivery 11, the gear mechanism 122 having one gearwheel assigned to the sheet delivery 11 and, for example, arranged coaxially with the chain sprocket 116, and having another gearwheel assigned to the transport device 71 and arranged, for example, coaxially with the chain sprocket 87, the two

gearwheels having an increased tooth clearance with respect to one another and coming into tooth-flank contact with one another only in the event of an accident.

Appellant outlined on page 16 of the specification, line 15, that the transport device 70 to 73 has a non-impact printer 78 to 81 assigned thereto and, following the latter in the sheet transport direction, a dryer 123 to 126. The non-impact printer 78 to 81 prints the sheet 17, and the dryer 123 to 126 dries the sheet 17, while the latter is transported by the transport device 70 to 73 along the transport path 74 to 77 and past the non-impact printer 78 to 81 and past the dryer 123 to 126. The non-impact printer 78 to 81 is preferably an ink jet printer, having nozzles from which droplets of ink are expelled by piezoelectric pumps.

As outlined on page 17 of the specification, line 1, each of the dryers 61 to 65 and 123 to 126 may be an IR (infrared radiation) dryer, a UV (ultraviolet radiation) dryer and, in particular, a so-called UV excimer dryer, which operates without forming any ozone and, with the monochromatic UV radiator thereof at 308 and 222 nanometers light wavelength, respectively, does not emit any heat radiation. Such a UV excimer dryer has become known heretofore, for example, from the publication "Druckwelt" (Printing World), March 1999

Issue, and was developed, for example, by the Sächsisches Institut der Druckindustrie [Saxon Institute for the Printing Industry] (SID), Leipzig, Germany, based upon blue-light modules with mercury-free UV radiators from the firm Heraeus Noblelight GmbH, Kleinostheim, Germany.

It is further stated on page 17 of the specification, line 15, that the dryers 123 to 126 are provided for drying the ink-jet ink printed by the non-impact printer 78 to 81, which can also be a UV-curable ink, the drying being rapid and essentially completed before the sheet 17 is printed or varnished in the second printing machine 6 to 9. The dryers 61 to 65 are provided for drying the entire sheet 17 before it is delivered into the sheet delivery 21 to 24.

Appellant described in the last paragraph on page 17 of the specification, line 23, that, instead of the ink jet printer, a laser printer can often also be provided as the non-impact printer 81 to 84, in which cases the dryer 123 to 126 may be dispensed with.

Appellant explained on page 18 of the specification, line 1, that the advantage of the non-impact printer 81 to 84 over an imprinting unit which is mechanically connectable, such as the imprinting unit 59, is that, by using the non-impact printer

81 to 84, addresses, personalizations and virtually all conceivable motifs can also be printed onto the sheet 17, it being possible for the type and sequence of the motifs to be updated during the uninterrupted running of the printing machine system 2 to 5. In the imprinting unit 59, the type, the number and the sequence of the motifs, which can be continuous numbering, codes and the like, for example, here, are predetermined by the form and indexing of the stamps or punches, or numbering wheels used in the imprinting unit 59, which can be replaced only when the machine is at a standstill.

As outlined in the last paragraph on page 18 of the specification, line 16, the transport device 70 is constructed as an electromagnetic linear drive and linear motor, respectively, which comprises stators 82 and 83 and at least one rotor 84 and 85, the rotor 84 and 85 being equipped with at least one otherwise non-illustrated sheet holding element for carrying the sheets 17, and the stators 82 and 83 being arranged along the transport path 74 of the sheets 17 and being constructed so as to produce a traveling electromagnetic field for driving the rotor 84 and 85 forward.

Appellant set forth on page 19 of the specification, line 1, that the transport device 71 is constructed as a chain

gripper, which is formed of a linked chain 88 revolving about two shafts provided with chain sprockets 86 and 87, at least one gripper bar 89, 90 carrying the sheet 17 is fastened to the chain 88.

Appellant further set forth on page 19 of the specification, line 7, that the transport device 72 is a suction belt that revolves around two shafts 91 and 92, is formed of an air-permeable material or is provided with air passages and, in order to hold the sheet 17 on the suction belt, the latter has a pneumatic suction device 93 assigned thereto which attracts the sheet 17 by suction through the suction belt.

It is outlined in the last paragraph on page 19 of the specification, line 14, that the transport device 73 is a transport belt, which revolves around two shafts 94 and 95, and has at least one tongs-type gripper 96, 97 for holding the sheet 17, the tongs-type gripper 96, 97 lying on that side of the thereby held sheet 17 which is to be printed by the non-impact printer 84 and, because of the ultra-flat construction thereof, as the sheet 17 is being transported past the non-impact printer 84, the tongs-type gripper 96, 97 is guidable without collision through a narrow gap 98 formed between the non-impact printer 84 and the sheet 17. Each tongs-type gripper 96, 97 moving relative to a gripper pad in order to

clamp the sheet and clamping the sheet between itself and the gripper pad, is less than 1.0 mm thick, in particular less than 0.5 mm thick, and thus projects barely in the direction of the non-impact printer 84.

Appellant described on page 20 of the specification, line 4, that, in addition, each gripper bar 89, 90 of the transport device 71, and each rotor 85 and 85' of the transport device 70, can be equipped with such an ultra-flat tongs-type gripper 99 to 102 as a sheet-holding element.

Appellant further described on page 20 of the specification, line 9, that the feeding device 66 to 69 accepts the sheet 17 from the respective transport device 71 to 73, which in turn accepts the sheet 17 from the sheet delivery, which is constructed as a chain gripper revolving around chain sprockets 116 and 117 and provided with otherwise non-illustrated delivery gripper bars. The feeding device, which serves to transfer the sheet to the second impression cylinder 29, 30, 47 or 48 and is constructed as a feed drum, has at least one adjusting or actuating device 103 to 105 assigned thereto.

It is also stated on page 20 of the specification, line 19, that, in order to simplify the following explanations, like

reference characters are used in Figs. 1 to 4 for sensors, electronic control devices and the adjusting or actuating devices which are constructionally and functionally identical in all the printing machine systems 2 to 5.

As set forth in the last paragraph on page 20 of the specification, line 25, the first impression cylinder 12 has at least one sensor 106 to 108 assigned thereto for monitoring the position of a sheet 17 transported by the impression cylinder 12, and the feeding device 66 to 69 has at least one further sensor 109 to 110 assigned thereto for monitoring the position of the sheet 17 to be transferred from the feeding device 66 to 69 to the second impression cylinder 29, 30, 47 or 48. The at least one sensor 107 and 108 and the at least one further sensor 109 and 110 are arranged to monitor the position of a leading edge of the sheet and, via an electronic control device 112, are linked to an adjusting or actuating device 103 that is used for adjusting the circumferential register of the feeding device 66 to 69. If only a single sensor 107 and 109 is assigned to the first impression cylinder 12 and the feeding device 66 to 69, respectively, for monitoring the circumferential register, then the sensor, respectively, is situated in the vicinity of the center of the format width of the leading edge of the sheet 17 passing by the sensor 107 and 109.



It is described in the last paragraph on page 21 of the specification, line 19, that the sensors 107 and 108 are preferably arranged offset from one another in the axial direction of the first impression cylinder 12, and form a first pair of sensors, and the sensors 109 and 110 are likewise preferably arranged offset from one another in the axial direction of the feeding device 66 to 69, and form a second pair of sensors. In terms of their pairwise arrangement, the sensors 107 to 110 are not arranged in the vicinity of the center of the sheet but, as a function of the format, adjustably close to the side edges of the sheet, so that the sensors 107 and 109 register the leading edge close to one side edge of the sheet, and the sensors 108 and 110 register the leading edge close to the other side edge of the sheet. The sensor pairs can be used not only to monitor the circumferential register but, alternatively or additionally, also to monitor the diagonal or skew register. In this case, each of the four sensors 107 to 110 is linked via the electronic control device 112 to an adjusting or actuating device 104 serving to adjust the diagonal register of the feeding device 66 to 69 and, with simultaneous monitoring of the circumferential register, also linked to the adjusting or actuating device 103.

Appellant outlined on page 22 of the specification, line 15, that, in addition, an incremental encoder 113 for registering the machine angle of the first printing machine 1, i.e., the rotary angle position of the rotating first impression cylinder 12, is linked to the electronic control device 112 and, via the latter, to the sensors 107 to 110.

Appellant explained in the last paragraph on page 22 of the specification, line 21, that, if the control device 112 establishes that there are deviations between the register values from the pair of sensors 107 and 108 or from the single sensor 107 in relation to the pair of sensors 109 and 110 or the single sensor 109, the control device 112 controls the adjusting or actuating device 103 in a manner that the circumferential register of the feeding device 66 to 69 is displaced in the circumferential direction of the feeding device 66 to 69, corresponding to a register-maintaining setting. If the control device 112 establishes that the monitored values from the pair of sensors 109 and 110 deviate from the monitored values of the pair of sensors 107 and 108, the control device 112 controls the adjusting or actuating device 104 in a manner that the diagonal register of the feeding device 66 to 69 is set in a register-maintaining manner by changing the skew setting or parallel setting thereof.

Appellant outlined on page 23 of the specification, line 12, that the sensors 106 and 111 are arranged so as to monitor the position of one side edge of the sheet 17, and are linked via the electronic control device 112 to an adjusting or actuating device 105 serving to adjust the lateral register of the feeding device. The sensor 106 measures the position of the sheet 17 on the first impression cylinder 12 in the axial direction of the latter, and signals the measured position to the control device 112. The sensor 111 likewise measures the lateral position of the sheet 17 on the feeding device 66 to 69 and, in turn, signals the measured position to the control device 112, which, in the event of a deviation of the value measured by the sensor 111 from the value measured by the sensor 106, controls the adjusting or actuating device 105 that serves to adjust the lateral register of the feeding device 66 to 69 in a manner that, by displacing the feeding device 66 to 69 axially, the lateral register thereof is adjusted.

As set forth on page 24 of the specification, line 4, the adjustment of the feeding device for correcting the circumferential, diagonal or lateral register is performed only after the trailing edge of the sheet transported by the feeding device 66 to 69 during the displacement thereof has

passed by the non-impact printer 81 to 84, and this sheet is no longer being printed by the non-impact printer 81 to 84.

Appellant further outlined on page 24 of the specification, line 11, that this reliably avoids any distortion of the image printed on the sheet by the non-impact printer 81 to 84 due to the premature displacement of the sheet relative to the yet-printing non-impact printer 81 to 84 by the feeding device 66.

It is also stated on page 24 of the specification, line 17, that each of the sensors 106 to 111 is constructed as an optical sensor in the form of a so-called CCD (charge coupled device) line.

As outlined in the last paragraph on page 24 of the specification, line 21, instead of directly monitoring the position of the sheet leading edge or the sheet lateral edge by the respective sensor 106 to 111, register marks, for example register crosses, can be printed in the first printing machine 1 with the applicator cylinder 19 onto the printed image-free sheet margins located at the edge of the sheet, the position of which is registered by the respective sensor 106 to 111, by which the position of the edge of the sheet is monitored indirectly.

Appellant explained on page 25 of the specification, line 5, that, after the register corrections described hereinabove have been performed, the feeding device 66 to 69 transfers the sheet 17, which has been printed in-register on the first impression cylinder 12, the register-maintenance of the sheet 17 having from time to time been lost due to the sheet transfer from the sheet delivery 11 to the transport device 70 to 73 at a separating location 115, to the second impression cylinder 29, 30, 47 or 48, again while maintaining register.

It is set forth in the last paragraph on page 25 of the specification, line 14, that, due to possible wear and necessary play in a coupling device 114, one cannot rule out that the respective second printing machine 6 to 9, each time it is coupled to the first printing machine 1, will be offset slightly relative to the latter, by a different amount. This offset manifests itself at the separating location 115, at which the respective transport device 70 to 73 accepts the sheets 17 from the sheet delivery 11, and at which the second printing machine 6 to 9 can be separated from the first printing machine 1. In other words, the sheet delivery 11 transfers the sheets 17 more-or-less in-register to the respective transport device 70 to 73, depending upon the magnitude of the offset.

Appellant outlined on page 26 of the specification, line 1, that the possibly inaccurate transfer register between the first printing machine 1 and the second printing machine 6 to 9 is advantageously compensated for by appropriate displacement of the feeding device 66 to 69, so that the sheet 17 is in turn transferred with accurate register from the feeding device 66 to 69 to the respective second impression cylinder 29, 39, 47 or 48.

References Cited:

U.S. Patent Number	Patentee	Date
5,040,460	Stark et al.	August 20, 1991
5,103,733	Drapatsky et al.	April 14, 1992
5,660,108	Pensavecchia	August 26, 1997
6,101,939	Giori et al.	August 15, 2000

Issues

1. Whether or not claims 1, 14, 16, and 18 are obvious over Pensavecchia (U.S. Patent No. 5,660,108) in view of Stark et al. (U.S. Patent No. 5,040,460) (hereinafter "Stark") under 35 U.S.C. §103.

2. Whether or not claims 3-11 and 15 are obvious over Pensavecchia (U.S. Patent No. 5,660,108) in view of Stark (U.S. Patent No. 5,040,460) and in further view of Drapatsky et al. (U.S. Patent No. 5,103,733) under 35 U.S.C. §103.
3. Whether or not claim 17 is obvious over Pensavecchia (U.S. Patent No. 5,660,108) in view of Stark (U.S. Patent No. 5,040,460) and in further view of Giori et al. (U.S. Patent No. 6,101,939) under 35 U.S.C. §103.

Grouping of Claims:

Claim 1 is independent. Claims 3-11 and 14-18 depend on claim 1. The patentability of claims 3-11 and 14-18 are not all separately argued. Therefore, claims 3-11 and 14-18 stand or fall with claim.

Arguments:

1. Claim 1 is not obvious over Pensavecchia in view of Stark under 35 U.S.C. §103:

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1 calls for, *inter alia*:

a second printing machine having a second impression cylinder and a feed drum disposed immediately up-line of the second impression cylinder for feeding the sheets directly to the second impression cylinder.

Claim 1 also calls for, *inter alia*:

an adjusting device assigned to the feed drum, the feed drum being at least partially displaceable by the adjusting device for adjusting and correcting registration of the feed drum.

The Examiner correctly stated on page 3 of the Office action dated May 20, 2004, that Pensavecchia does not disclose displacing the feed drums (72a and 72b) for adjusting and correcting registration of the feed drums. Therefore, Pensavecchia does not disclose that the feed drum is at least partially displaceable by the adjusting device for adjusting and correcting registration of the feed drum, as recited in claim 1 of the instant application.

On page 3 of the Office action dated May 20, 2004, the Examiner cites the Stark reference as disclosing a "sheet feed drum 4" which has a sheet register assembly for adjusting the



"sheet feed drum 4" in order to make up for the deficiencies of Pensavecchia. The Examiner also stated that it would have been obvious to those having ordinary skill in the art to provide the sheet printing machine of Pensavecchia with the sheet feed drum adjustment as disclosed in Stark.

As will be seen from the following comments, Stark teaches away from away from the combination as suggested by the Examiner.

The Stark reference discloses a linking perfecting assembly having a register drum (4) and a transfer drum (3). The Stark reference discloses that "after the sheet has been released from the register drum 4, it passes to a second or trailing transfer drum 3 and then goes to an impression cylinder 8" (column 3, lines 45-48).

The Examiner is overlooking the two features in the instant application that a second printing machine has a second impression cylinder and a feed drum disposed immediately up-line of the second impression cylinder for feeding the sheets directly to the second impression cylinder, as recited in claim 1. These two features basically express the same thing, where one feature emphasizes structure and the other function.

A person of ordinary skill in the art cannot arrive at the invention of the instant application according to claim 1 by a combination of Pensavecchia and Stark. The Stark reference teaches a person of ordinary skill in the art away from the present invention and thus away from the subject matter of claim 1. The above-noted text passage from Stark that "after the sheet has been released from the register drum 4, it passes to a second or trailing transfer drum 3 and then goes to an impression cylinder 8" is the exact opposite of claim 1 of the instant application. Because Stark discloses that the transfer drum (3) is disposed between the register drum (4) and the impression cylinder (8) the register drum (4) of Stark is not disposed immediately up-line of the impression cylinder (8). Therefore, in Stark the sheet is not directly transferred from the register drum (4) to the impression cylinder (8). Instead, in Stark the sheet is first transferred from the register drum (4) to the transfer drum (3) and then from the transfer drum (3) to the impression cylinder (8). In other words, Stark discloses that the transfer of the sheet from the register drum (4) to the impression cylinder (8) must occur indirectly via the transfer drum (3).

Because Stark teaches that the register drum (4) is not disposed immediately up-line of the impression cylinder (8)

and that the register drum (4) does not feed sheets directly to the second impression cylinder, while the feed drums (72a and 72b) of Pensavecchia are disposed directly next to the cylinder, Stark teaches a person of ordinary skill in the art away from the combination as suggested by the Examiner.

Therefore, the present invention as claimed is not obvious over Pensavecchia in view of Stark.

Appellants comment as follows, with respect to the Examiner's comments on page 5 of the Office action dated May 20, 2004, that the Examiner did not propose a physical replacement of the feed drums (72a and 72b) of Pensavecchia with the drums of Stark.

A person of ordinary skill in the art would not consider the transfer drum, the feed drum and its sheet registration station out of context, which is exactly what the Examiner does. From the point of view of a person of ordinary skill in the art, only the physical replacement of the drums in Pensavecchia with the drums of Stark would make any sense. As can be seen from the above-given comments, such a physical replacement does not obviate the invention of the instant application as recited in claim 1 of the instant application.

Furthermore, it is not obvious to equip the drums (72a and 72b) of Pensavecchia with the sheet registration station disclosed in Stark, as is suggested by the Examiner in lines 9-13 on page 5 of the Office action dated May 20, 2004. The Examiner has ignored the fact that Pensavecchia already discloses a sheet registration station (77) (column 4, lines 46-53). Therefore, an additional sheet registration station is not necessary. Moreover, a person of ordinary skill in the art is always motivated to avoid unnecessary devices and the cost associated therewith. It is therefore respectfully submitted that the Examiner's comments on page 5 of the Office action dated May 20, 2004 be disregarded.

Furthermore, a critical step in analyzing the patentability of claims pursuant to 35 U.S.C. § 103 is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. See In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614,1617 (Fed. Cir. 1999). Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher."

Id. (quoting W.L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983)).

Most if not all inventions arise from a combination of old elements. See In re Rouffet, 149 F.3d 1350, 1357, 47 USPQ2d 1453,1457 (Fed. Cir. 1998). Thus, every element of a claimed invention may often be found in the prior art. See id.

However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. See id. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the appellant. See In re Dance, 160 F.3d 1339, 1343, 48 USPQ2d 163.5, 1637 (Fed. Cir. 1998); In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125,1127 (Fed. Cir. 1984).

The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved. See Dembiczak, 175 F.3d at 999, 50 USPQ2d at 1617. In addition, the teaching, motivation or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references. See WMS

Gaming, Inc. v. International Game Tech., 184 F.3d 1339, 1355, 51 USPQ2d 1385, 1397 (Fed. Cir. 1999). The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art. See In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981) (and cases cited therein). Whether the examiner relies on an express or an implicit showing, the examiner must provide particular findings related thereto. See Dembiczak, 175 F.3d at 999, 50 USPQ2d at 1617. Broad conclusory statements standing alone are not "evidence." Id. When an examiner relies on general knowledge to negate patentability, that knowledge must be articulated and placed on the record. See In re Lee, 277 F-3d 1338, 1342-45, 61 USPQ2d 1430, 1433-35 (Fed. Cir. 2002).

Upon evaluation of the examiner's comments, the evidence adduced by the Examiner is insufficient to establish a prima facie case of obviousness with respect to the claims.

Since claim 1 is believed to be allowable, dependent claims 14, 16, and 18 are believed to be allowable as well.

2. Claims 3-11 and 15 are not obvious over Pensavecchia in view of Stark and Drapatsky et al.:

The arguments relating to issue 1 are hereby incorporated by reference in their entirety because they are equally applicable to claims 3-11 and 15. Additionally, Drapatsky et al. do not make up for the deficiencies of Pensavecchia and Stark. Since claim 1 is believed to be allowable, dependent claims 3-11 and 15 are believed to be allowable as well.

3. Claim 17 is not obvious over Pensavecchia in view of Stark and Giori et al.:

The arguments relating to issue 1 are hereby incorporated by reference in their entirety because they are equally applicable to claim 17. Additionally, Giori et al. do not make up for the deficiencies of Pensavecchia and Stark. Since claim 1 is believed to be allowable, dependent claim 17 is believed to be allowable as well.

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The honorable Board is therefore respectfully urged to reverse  
the final rejection of the Primary Examiner.

Respectfully submitted,



For Appellants

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Appendix - Appealed Claims:

1. A modular printing machine system for printing on sheets, comprising:

a first printing machine of satellite construction type having a central first impression cylinder, and at least four printing devices assigned thereto;

a second printing machine having a second impression cylinder and a feed drum disposed immediately up-line of said second impression cylinder for feeding the sheets directly to said second impression cylinder; and

an adjusting device assigned to said feed drum, said feed drum being at least partially displaceable by said adjusting device for adjusting and correcting registration of said feed drum.

3. The modular printing machine system as claimed in claim 1, wherein the first impression cylinder has at least one sensor assigned thereto for monitoring the position of a sheet transported by the first impression cylinder, and said feed drum has at least one further sensor assigned thereto for monitoring the position of the sheet to be transferred by said feed drum to the second impression cylinder of the second printing machine.

4. The modular printing machine system according to claim 3, wherein said adjusting device serves for adjusting the circumferential register of said feed drum, and said at least one sensor and said at least one further sensor are disposed for monitoring the position of a leading edge of the sheet and are linked via an electronic control device to said adjusting device.

5. The modular printing machine system according to claim 4, wherein, respectively, a single sensor disposed for monitoring the position of the leading edge of the sheet is assigned to the central first impression cylinder and to said feed drum, and each of two sensors is linked via said electronic control device, to said adjusting device serving to adjust the circumferential register of said feed drum.

6. The modular printing machine system according to claim 3, wherein, respectively, two sensors disposed for monitoring the position of the leading edge of the sheet are assigned to the central impression cylinder and to said feed drum, and each of four sensors is linked, via an electronic control device, to at least one of a plurality of adjusting devices serving to adjust the diagonal register of said feed drum and of at least another of said plurality serving to adjust the circumferential register of the feed device.

7. The modular printing machine system according to claim 3, wherein said at least one sensor and said at least one further sensor are disposed for monitoring the position of a lateral edge of the sheet and are linked via an electronic control device to an adjusting device serving to adjust the lateral register of said feed drum.

8. The modular printing machine system according to claim 1, wherein said at least one sensor and said at least one further sensor are sensors for contact-free registering the position of the sheet.

9. The modular printing machine system according to claim 8, wherein said contact-free registering sensors are optically operating.

10. The modular printing machine system according to claim 3, including an incremental encoder for registering the machine angle of the first printing machine, which corresponds to the rotary angle position of the rotating first impression cylinder, said incremental encoder being linked to an electronic control device and, via said electronic control device, to said sensors.

11. The modular printing machine system according to claim 3, wherein the first printing machine includes a sheet delivery, and said feed drum is disposed for accepting the sheet from a transport device, and said transport device is disposed for accepting the sheet from said sheet delivery.

14. The modular printing machine system according to claim 1, wherein said first printing machine has a first sheet delivery, and said second printing machine has a second sheet delivery.

15. The modular printing machine system according to claim 1, wherein said first printing machine is a Quickmaster QM 46-4 made by HEIDELBERGER DRUCKMASCHINEN AG, and wherein said second printing machine is a Printmaster QM 46-1 or QM 46-2 made by HEIDELBERGER DRUCKMASCHINEN AG.

16. The modular printing machine system according to claim 1, wherein said coupling device is used for selectively decoupling said first printing machine and said second printing machine from one another for stand-alone operation of said first printing machine.

17. The modular printing machine system according to claim 1, wherein said first impression cylinder of said first

printing machine and said second impression cylinder of said second printing machine are of different sizes.

18. The modular printing machine system according to claim 1, wherein said adjusting device adjusts and corrects registration of said feed drum with said second impression cylinder upon coupling said first printing machine and said second printing machine to one another for in-line operation thereof.